

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

SUPPORT FOR CLAIM AMENDMENTS

Support for the amendments to the claims can be found in the specification as originally filed on page 7 lines 11-15. As such, no new matter has been added. The amendments are consistent with the arguments provided in earlier Amendments, thus no new issues have been raised.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

The rejection of claims 1-14, 16 and 20 under 35 U.S.C. §102(b) as being anticipated by Foster et al. '640 (hereinafter Foster) has been obviated in part by appropriate amendment and is respectfully traversed in part and thus should be withdrawn.

Foster is directed to a method for producing titanium-containing thin films by low temperature plasma-enhanced chemical vapor deposition using a rotating susceptor reactor (Title). Foster does not appear to disclose or suggest every element as arranged in the pending claims. As such, the present invention is fully patentable over the cited reference and the rejection should be withdrawn.

In particular, pending claim 1 provides a one-piece outer portion consisting of an electrically insulative material. MPEP §2111.03 reads:

The transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. *In re Gray*, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); *Ex parte Davis*, 80 USPQ 418, 450 (Bd. App. 1948) ("consisting of" defined as "closing the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith.") A claim which depends from a claim which "consists of" the recited elements or steps cannot add an element or step. When the phrase "consists of" appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole. *Mannesmann Demag Corp. v. Engineered Metal products Co.*, 793 F.2d 1279, 230, USPQ 45 (Fed. Cir. 1986)

In contrast, page 10, item 2 of the Office Action asserts that Foster discloses a "one piece aggregate" that includes an insulator sleeve 270, an insulator sleeve 271 and an insulator 272 from FIG. 2B of Foster. Page 6, items 13 of the Office Action includes a gas distributor cover 239 from FIG. 2B in the aggregate. To physically link elements 272 and 270, FIG. 2B of Foster shows that an RF line tubing 254 and a sealing assembly 241 would also form part of the aggregate. However, Foster states that the gas distributor cover 239, the RF line tubing 254 and parts of the sealing assembly 241 are made of conductive materials that violate the "consisting of" phrase of pending claim 1. Therefore, the "one piece aggregate" of elements 270, 271, 272, 239, 241 and 254 from FIG. 2B of Foster do not disclose or suggest a one-piece outer portion consisting of an

electrically insulative material as presently claimed. Pending claims 2-6, 8 and 9 have similar language to pending claim 1.

Furthermore, pending claim 1 provides that the one-piece outer portion has dimensions effective (i) to prevent or inhibit plasma arcing to an electrically conductive surface of a plasma processing chamber aperture. Page 2, item 2, paragraph i, lines 2-6 of the Office Action reference cylinder 238 and column 18 line 53 of Foster as disclosing preventing or inhibiting plasma arching to an electrically conductive surface of a plasma processing chamber aperture. In contrast, column 18, lines 50-55 of Foster read:

The embodiment of FIG. 2B utilizes quartz cylinder 238 and eliminates the metal attachment screws proximate showerhead/electrode 222 which helps to prevent the formation of a plasma within cylinder 238 and to prevent arcing between the RF line 256 and showerhead/electrode 222 and any of the surrounding metal. (Emphasis added)

The referenced lines of Foster appear to disclose that an elimination of screws 192 (shown in FIG. 2A) help to prevent the arcing, not the insulator sleeves 270 and 271. The remaining text and figures of Foster appear to be silent regarding any element 239, 270, 271, 272, and/or 254 preventing plasma arching to any electrically conductive surface of the housing cover 232. Therefore, Foster does not appear to disclose or suggest a one-piece outer portion that has dimensions effective (i) to prevent or inhibit plasma arcing to an electrically conductive surface of a plasma processing chamber aperture as presently claimed. Pending

claims 2-6, 8 and 9 have similar language to pending claim 1. As such, the pending invention is fully patentable over the cited reference and the rejection should be withdrawn.

Pending claim 9 provides cleaning a chamber and a device therein. In contrast, page 5, item, 2, paragraph xxii of the Office Action points to column 30, line 14 of Foster as disclosing cleaning a chamber and a device. However, column 30, lines 9-14 of Foster read:

The improvement in yield indicates that the CVD-Ti process provides more uniform and repeatable results over the surface of the wafer, and suggests that the process may overcome minor contact to contact variations that are created by the contact etch and contact cleaning processes. (Emphasis added)

Column 30, line 14 of Foster is referring to contact cleaning of a wafer, not cleaning of a plasma deposition chamber and a device inserted into an aperture of the chamber. The remaining text and figures of Foster appear to be silent regarding cleaning the chamber housing 232 or any part of a CVD apparatus 220. Therefore, Foster does not appear to disclose or suggest cleaning a chamber and a device therein as presently claimed. As such, the pending invention is fully patentable over the cited reference and the rejection should be withdrawn.

Pending claim 13 provides holding a device in a plasma processing chamber aperture via a predetermined amount of pressure against a wall of the aperture. Page 6, item 2, paragraph xxvii of the Office Action points to a wire loop configuration at an

interface between a gas distributor cover 239 and a housing cover 232 in FIG. 2B of Foster as a predetermined amount of pressure against a wall of an aperture in the housing cover 232. In contrast, FIG. 2B of Foster shows that an o-ring disposed between covers 239 and 232 is not located in a wall of an aperture in the housing cover 232 in which the gas distributor cover 239 is disposed. Therefore, the o-ring disclosed by Foster appears to be in a different position than provide in pending claim 13. Furthermore, the o-ring in FIG. 2B of Foster does not appear to be operational to hold the "one piece aggregate" device in the processing chamber aperture. Instead, Foster discloses screws for holding a bottom surface of the gas distribution cover 239 against a top surface of the housing cover 232. The screws disclosed by Foster do not appear to apply any pressure against the wall of the aperture formed in the housing cover 232. Therefore, Foster does not appear to disclose or suggest holding a device in a plasma processing chamber aperture via a predetermined amount of pressure against a wall of the aperture as presently claimed. As such, the pending invention is fully patentable over the cited reference and the rejection should be withdrawn.

It is respectfully requested that the Examiner withdraw the rejection for claims 2 and 4-7. Alternatively, it is respectfully requested that the Examiner provide a clear and concise statement of the specific reasons why claims 2 and 4-7 are

rejected under 35 U.S.C. 102(b) as being unpatentable over Foster. *Ex parte Humphreys*, 24 U.S.P.Q.2d 1255 (B.P.A.I. 1992). The Office Action provides a copy of the pending claims elements but fails to identify where the claim elements are disclosed or suggested in Foster.

It is respectfully requested that the Examiner withdraw the rejection for claims 16 and 20. Alternatively, it is respectfully requested that the Examiner provide a clear and concise statement of the specific reasons why claims 16 and 20 are rejected under 35 U.S.C. 102(b) as being unpatentable over Foster. *Ex parte Humphreys*, 24 U.S.P.Q.2d 1255 (B.P.A.I. 1992). No basis for rejecting claims 16 and 20 is provided in the Office Action.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejections of claim 17 under 35 U.S.C. §103(a) as being obvious over Foster and claims 15, 18 and 19 under 35 U.S.C. §103(a) as being obvious over Foster in view of Curtis '068 (hereinafter Curtis) have been obviated by appropriate amendment and should be withdrawn.

Claims 15, 17, 18 and 19 depend, either directly or indirectly, from claims 1 and 2 which are believed to be allowable. As such, the presently claimed invention is fully patentable over the cited references and the rejections should be withdrawn.

Furthermore, the conclusory statements in the Office Action fail to provide objective factual findings specifically identifying the principle or understanding that would have motivated one of ordinary skill in the art with no knowledge of the presently claimed invention to make the invention. Foster does not deal with a plasma etching process, instead Foster deals with a CVD process using a plasma. Therefore, there appears to be no clear motivation to add a capability to detect an end point of a plasma etching process when no such plasma etching process is conducted. Furthermore, motivation for optimizing to achieve optimization is a circular argument. The Office Action must provide evidence for a motivation to combine without using the pending claims as a template. Therefore, the Office Action fails to meet the burden of factually establishing a *prima facie* case of obviousness (see MPEP §§ 2142 and 2143.01). As such, the presently claimed invention is fully patentable over the cited references and the rejections should be withdrawn.

FINALITY OF THE OFFICE ACTION

Applicant's representative respectfully requests reconsideration of the finality of the December 11, 2002 Office Action. 37 C.F.R. §1.104(b) states:

(b) *Completeness of examiner's action.* The examiner's action will be complete as to all matters, except that in appropriate circumstances, such as misjoinder of invention, fundamental defects in the application, and

the like, the action of the examiner may be limited to such matters of form need not be raised by the examiner until a claim is found allowable. (Emphasis added)

The Office Action has not provided any grounds for rejecting claims 2, 4-7, 16 and 20. As such, the final rejections are premature and should be withdrawn.

Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge our office Account No. 50-0541.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (FOUR TIMES AMENDED) A device comprising:

a one-piece outer portion [comprising] consisting of an electrically insulative material and having dimensions effective (i) to prevent or inhibit plasma arcing to an electrically conductive surface of a plasma processing chamber aperture and (ii) to fit securely into said plasma processing chamber aperture, said one-piece outer portion further comprising:

(i) a flange section configured to remain outside of said plasma processing chamber aperture; and

(ii) an inner opening communicating through the electrically insulative material between a bottom and a top of the outer portion, the inner opening having dimensions effective to enable transmission of any of a physical signal, a gas, a gas mixture and other material through the device.

5. (FOUR TIMES AMENDED) A plasma processing chamber having:

at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, and

a one-piece sleeve inside the aperture, the one-piece sleeve [comprising] consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture and to fit securely into the aperture;

(ii) a flange section configured to remain outside said aperture; and

(iii) an inner opening communicating through the electrically insulative material from a bottom to a top of the one-piece sleeve, the inner opening having dimensions effective to enable transmission of any of a physical signal, a gas, a gas mixture and other material through the device.

6. (FOUR TIMES AMENDED) A method of making a plasma processing chamber, the chamber having at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, the method comprising inserting a one-piece sleeve into the aperture, the one-piece sleeve [comprising] consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture and to fit securely into said aperture;

(ii) a flange section configured to remain outside said aperture; and

(iii) an inner opening communicating through the electrically insulative material between a bottom and a top of the

one-piece sleeve, the inner opening having dimensions effective to
15 enable transmission of any of a physical signal, a gas, a gas
mixture and other material through the one-piece sleeve.

8. (FOUR TIMES AMENDED) A method of processing a
workpiece, comprising:

(A) exposing the workpiece to a plasma in a chamber, the
chamber having at least one aperture therein, the at least one
5 aperture having

1) an exposed electrically conductive surface, and
2) a one-piece sleeve in the aperture, the one-
piece sleeve [comprising] consisting of an electrically insulative
material and having

10 (i) dimensions effective to prevent or inhibit
plasma arcing to the exposed electrically conductive surface of the
aperture and to fit securely into said aperture,

(ii) a flange section configured to remain
outside said aperture, and

15 (iii) an inner opening communicating through
the electrically insulative material between a bottom and a top of
the one-piece sleeve, the inner opening having dimensions effective
to enable transmission of any of a physical signal, a gas, a gas
mixture and other material through the device; and

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(B) transmitting any of a physical signal, a gas, a gas mixture and other material through the device in to or out from the chamber.